WHAT IS CLAIMED IS:

1. A flow measuring apparatus for measuring flow of fluid based on a difference in radiation of heat between an upstream side and a downstream side of a heating member provided in the fluid, comprising:

an upstream temperature sensor provided on the upstream side of the heating member for measuring first temperature;

a downstream temperature sensor provided on the downstream side of the heating member for measuring second temperature; and

a circuit for controlling power to the heating member to maintain an average temperature level of the first temperature measured by the upstream temperature sensor and the second temperature measured by the downstream temperature sensor at a predetermined level.

2. The flow measuring apparatus according to claim 1, wherein the flow of the fluid is calculated from the difference between the first temperature measured by the upstream temperature sensor and the second temperature measured by the downstream temperature sensor.

3. The flow measuring apparatus according to claim 1, further comprising:

an upstream heating member provided between the heating member and the upstream temperature sensor for generating heat based on the power controlled by the circuit; and

a downstream heating member provided between the heating member and the downstream temperature sensor for generating heat based on the power controlled by the circuit,

wherein the circuit controls respective power to the upstream heating

member and to the downstream heating member to maintain the first temperature measured by the upstream temperature sensor and the second temperature measured by the downstream temperature sensor substantially equal and measures the flow of the fluid based on the difference between the respective power.

4. The flow measuring apparatus according to claims 1, wherein the circuit modifies the predetermined level based on temperature of the fluid.

5. The flow measuring apparatus according to claims 1, wherein the circuit modifies the predetermined level based on the flow of the fluid.

6. The flow measuring apparatus for measuring flow of fluid based on a difference in radiation of heat between an upstream side and a downstream side of a heating member provided in the fluid, comprising:

a first, a second, a third, a fourth, a fifth, and a sixth thermally sensitive resistors provided in a row from upstream to downstream, each resistor having functions as a heater for generating heat and as a temperature sensor for measuring temperature; and

a circuit for controlling power to each thermally sensitive resistor to heat,

wherein the circuit controls respective power to the third and the fourth thermally sensitive resistors to maintain heated temperature levels of the second and the fifth thermally sensitive resistors substantially equal, said circuit controls respective power to the second and the fifth thermally sensitive resistors to maintain heated temperature levels of the first and the sixth thermally sensitive resistors substantially equal, and said circuit measures the flow of the fluid based on the difference between the

respective power to the third and the fourth thermally sensitive resistors and the difference between the respective power to the second and the fifth thermally sensitive resistors.

7. The flow measuring apparatus according to claim 6, further comprising:

a heating resistor provided between the third and the fourth thermally sensitive resistors, wherein

the circuit controls power to the heating resistor to maintain an average temperature level of the first and the sixth thermally sensitive resistors at a predetermined level.

8. The flow measuring apparatus according to claim 7, wherein the circuit modifies the predetermined level based on temperature of the fluid.